

CLAIMS

What is claimed is:

1. An apparatus for painting a product in a production painting facility comprising:

5 a plurality of paint feed tanks each having a base paint with a primary color therein;

at least one paint feed pump connected to each of said paint feed tanks for pumping the base paint from said tank;

10 a blending device receiving the base paint from each of said feed pumps at a predetermined ratio thereby mixing the base paints to form a secondary paint having a predetermined color corresponding to the predetermined ratio;

a paint applicator receiving the secondary paint from said blending device under pressure for applying the paint to the product; and

15 a controller programmable with a plurality primary paint ratios corresponding to a plurality of hues and chromas and communicable with each of said pumps for signaling the primary paint ratios of the base paints necessary to form the secondary paint.

20 2. An apparatus as set forth in claim 1 including at least one valve for each primary paint actuated by said controller thereby metering a predetermined amount of the base paint delivered to said blending device.

3. An apparatus as set forth in claim 2 wherein said blending device includes a manifold fluidly connected to said valves thereby receiving the base paint through said valves in a ratio corresponding to said predetermined hue and chroma.

5 4. An apparatus as set forth in claim 3 wherein each of said valves is affixed to said manifold.

5. An apparatus as set forth in claim 4 wherein each of said valves comprises a solenoid valve.

10

6. An apparatus as set forth in claim 1 wherein said blending device includes a mixing tube fluidly connected to said manifold and having a spiraled path therein for agitating and mixing said base paints.

15

7. An apparatus as set forth in claim 1 wherein said paint applicator comprises one of an electrostatic and a non-electrostatic rotary atomizer.

20

8. An apparatus as set forth in claim 1 wherein said paint applicator is manipulated by said robot arm along a predetermined path for applying the secondary paint to the product.

9. An apparatus as set forth in claim 8 wherein said blending device is affixed to said robot arm.

10. An apparatus as set forth in claim 1 wherein each of said pumps comprises a gear pump activated by said controller according to the primary paint ratios necessary to mix each of the predetermined colors.

5

11. An apparatus as set forth in claim 1 further including a solvent supply and an air supply connected to said blending device for purging and cleaning said blending device.

10

SUBA 1 >

12. A method of painting a product in a production painting facility comprising the steps of:

selecting a hue;

selecting a chroma corresponding to the hue;

5 providing a production painting facility with a plurality of base paints mixable to constitute a secondary paint having any selected hue and chroma;

providing a blending device for blending the plurality of base paints;

delivering the plurality of base paints to said blending device;

10 blending the plurality of base paints in said blending device according to a predetermined ratio to form the secondary paint having the hue and chroma previously selected;

delivering the secondary paint to an applicator; and

applying the secondary paint received from said blending device to a product.

15 ² ~~13.~~ A method as set forth in claim ¹ ~~12~~ further including the step of predetermining the ratio of base paints corresponding to the selected hue and chroma.

³ ~~14.~~ A method as set forth in claim ² ~~13~~ further including the step of signaling the blending device with the ratio of base paints corresponding to the selected hue and
20 chroma.

⁴ ~~15.~~ A method as set forth in claim ³ ~~14~~ further including the step of purging and cleaning the blending device in response to a selection of a new hue and chroma.

5 ~~16~~. A method as set forth in claim ~~12~~¹ wherein said step of blending base paints is further defined by blending at least red, yellow, blue, white, and black.

5 ~~17~~⁶. A method as set forth in claim ~~12~~¹ wherein said step of selecting a hue and a chroma further includes selecting a mica based paint to blend with the base paints.

~~18~~⁷. A method as set forth in claim ~~17~~⁶ wherein said step of selecting a hue and a chroma further includes selecting a metallic base paint to blend with the base paints.

10

19. An apparatus for painting a product in a production painting facility comprising:

a plurality of paint feed tanks each storing a separate base paint and each being fluidly connected to a paint feed pump;

5 a blending device affixed to a robot arm proximate to a paint applicator, wherein said blending device is fluidly connected to each of said paint feed pumps to receive a predetermined ratio of said base paints from said paint feed pumps thereby blending the base paints to form a secondary paint applicable to the product via said paint applicator;

10 said paint feed tanks each being capable of storing a base paint having a primary color and said blending device being capable of blending the predetermined ratio of said base paints received from said feed pumps to form the secondary paint corresponding to a predetermined hue and chroma; and

15 including a controller programmable with a plurality primary paint ratios corresponding to a plurality of hues and chromas and being communicable each of said pumps for signaling the primary paint ratios of the base paints necessary to form the secondary paint.

20 20. An apparatus as set forth in claim 19 including at least one valve for each primary paint actuated by said controller thereby metering a predetermined amount of the base paint delivered to said blending device.

21. An apparatus as set forth in claim 20 wherein said blending device includes a manifold fluidly connected to said valves thereby receiving the base paint through said valves in a ratio corresponding to said predetermined hue and chroma.

5 22. An apparatus as set forth in claim 21 wherein each of said valves is affixed to said manifold.

23. An apparatus as set forth in claim 22 wherein each of said valves comprises a solenoid valve.

10 24. An apparatus as set forth in claim 19 wherein said blending device includes a mixing tube fluidly connected to said manifold and having a spiraled path therein for agitating and mixing said base paint.

15 25. An apparatus as set forth in claim 19 wherein said paint applicator comprises an electrostatic rotary atomizer.

20 26. An apparatus as set forth in claim 19 wherein said paint applicator is manipulated by said robot arm along a predetermined path for applying the secondary paint to the product.

27. An apparatus as set forth in claim 19 wherein each of said pumps comprises a gear pump activated by said controller according to the primary paint ratios necessary to mix each of the predetermined colors.

5 28. An apparatus as set forth in claim 19 further including a solvent supply and an air supply connected to said blending device for purging and cleaning said blending device.

SUB A₂ >
 29. A method of painting a product in a production painting facility comprising the steps of:

selecting a hue and a chroma corresponding to the hue from a color chart;

providing a production painting facility with a plurality of base paints mixable to
 5 constitute a secondary paint having a color derived from an unlimited combination of hues and chromas;

providing a blending device for blending the plurality of base paints;

delivering the plurality of base paints to said blending device;

blending the plurality of base paints in said blending device according to a
 10 predetermined ratio to form the secondary paint having the hue and chroma previously selected;

delivering the secondary paint to an applicator; and

applying the secondary paint received from said blending device to a product.

9
 30. A method as set forth in claim 29 further including the step of
 15 predetermining the ratio of base paints corresponding to the selected hue and chroma.

10
 31. A method as set forth in claim 30 further including the step of signaling the
 blending device with the ratio of base paints corresponding to the selected hue and
 20 chroma.

11
 32. A method as set forth in claim 30 further including the step of purging and
 cleaning the blending device in response to a selection of a new hue and chroma.

¹²
~~33.~~ A method as set forth in claim ~~28~~⁸ wherein said step of blending base paints is further defined by blending at least red, yellow, blue, white, and black.

5 ¹³
~~34.~~ A method as set forth in claim ~~28~~⁸ further including the step of selecting a mica based paint to blend with the base paints.

¹⁴
~~35.~~ A method as set forth in claim ~~28~~⁸ further including the step of selecting a mica based paint to apply over said secondary paint.

10 ¹⁵
~~36.~~ A method as set forth in claim ~~28~~⁸ wherein said step of selecting a hue and a chroma further includes selecting a metallic base paint to blend with the base paints.

15